NOVEMBER/DECEMBER 2025

23UEIM53A — OPERATING SYSTEM

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define Operating System.
2. List any two services of an operating system.
3. Outline the term system call.
4. Define process scheduling.
5. State the use of semaphores.
6. Write the conditions for deadlock.
7. What is thrashing in memory management?
8. What is paging?
9. List the types of directory structures.
10. Extend the term sequential access.

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SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain the services of an operating system.

Or

(b) Write short notes on virtual machines.

12. (a) Discuss about First Come First Serve (FCFS) CPU scheduling with an example.

Or

(b) Explain the critical section problem.

13. (a) Classify the methods for handling deadlocks.

Or

(b) Describe deadlock prevention with example.

14. (a) Write notes on segmentation and paging.

Or

(b) Explain page replacement algorithms with example.

15. (a) Discuss the types of directory structures.

Or

(b) Develop an activity to implement file attributes and operations.

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SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss process scheduling algorithms with examples.

17. Explain the classical synchronization problems and their solutions.

18. Describe deadlock detection and recovery methods.

19. Analyze the steps involved in demand paging and thrashing in detail with suitable diagrams.

20. Comparison between different access methods in file system with examples.

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